MATRIX OF PLANT COMMUNITY/ASSOCIATION TYPES BY STATE AND GLOBAL RANK AND OCCURRENCE BY BUREAU OF LAND MANAGEMENT RESOURCE AREA: WITH FORWARD EXPLAINING COMPILATION AND USE OF MATRIX

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ABSTRACT

Within the state of Montana at least 400 plant associations or plant community types have been catalogued. The Bureau of Land Management has vast acreages under its aegis; the various Resource Areas (R.A.) represented have widely varying climates, substrates and landscapes. Because community types are good biological integrators of the above listed variables, an easily comprehended measure of the differences and similarities between these areas can be appreciated from a matrix of community types by R.A. In addition this matrix can provide an easily accessible geographically keyed listing of communities critical to conservation measures.

FORWARD TO MATRIX OF PLANT COMMUNITIES/ASSOCIATIONS ON BUREAU of LAND MANAGEMENT HOLDINGS: BY CONSERVATION RANK AND RESOURCE AREA

To assess community type distribution by Bureau of Land Management Resource Area (R.A.) the initial approach was to query the Biological Conservation Database (BCD). This database, as currently constituted and maintained on MTNHP computer system, contains only high quality (near pristine, lightly grazed) representations of c.ts. Only 125 plots were found in database that actually were on BLM lands (0 on Garnet, 0 on Great Falls, 2 on Powder River, 3 on Big Dry, 5 on Judith, 13 on Billings, 14 on Headwaters, 16 on Valley, 20 on Havre, 26 on Phillips and Dillon). Another query of BCD with records for counties aggregated into Resource Areas (because Resource Areas is not a field that can be queried in BCD) yielded only an additional 28 plots. Counties with no, or very minimal BLM lands were not queried; see Table 3 (page vii for listing of counties queried and those with dual Resouce Area membership).

This meager total would not begin to reveal the diversity of c.ts. on BLM holdings so further inquiry was made. However, it cannot be stated unequivocally that the c.ts. cited for particular resource areas actually occur on BLM holdings. We have only surmised that c.ts. documented to be within the jurisdictional boundaries of particular R.As. occur in environments that would also be found on BLM lands.

We then mounted back-up discs of lower quality site records once purged from the BCD system and derived locations for an additional 234 types.

A manual search then ensued which involved the perusal of the scientific literature and field and clearance reports that BCD indicated had been an original source of community description. This was complemented by a scan of the Montana Riparian Association stream reach inventory reports to the BLM (and other agencies with holdings proximal to those of the BLM). A scan of these inventory reports for stream reaches was deemed more efficient and more inclusive as much more acreage was evaluated than was covered when field plots were established (during sampling for ad database on which to construct a wetlands classification.

There are a number of types listed for which we have no plot documentation at this time; such would be the case for several riparian/wetland types named by the Montana Riparian Association in the course of inventorying Bureau of Land Management lands as per contractual stipulations. Other community types have been described by well-known ecologists (e.g. W. Mueggler and W.

Stewart) but no sample plots exit to document the existence of the type; these community types have been entered into our database on the strength of the observers' reputations in ecological matters. Still other community type information remains only on field forms and is yet to receive comprehensive analysis, but again based on the excellent reputations of investigators (such as R. DeVelice and P. Lesica) the preliminary community type designations based on these not yet analyzed field records have been incorporated into this matrix. Note that c.ts. derived from incompletely analyzed data tend to be grouped in the last portion of the matrix labeled "OTHER."

The 19 page table that precedes the c.t./rank by R.A. matrix is an alphabetical listing of community types and UNESCO structural types (a hierarchical classification of vegetation types) and is meant as a convenience for entering the matrix. Following c.t. name is the page number of matrix on which particular c.ts./structural types occur and the BCD source of the most definitive information on that vegetation type (UNESCO structural types do not have citations!).

The c.t./rank by R.A. matrix is organized by the UNESCO structural/physiognomic system so as to confer some ecological meaning to the whole. The UNESCO system is composed of four levels (Class, Subclass, Group, Formation). Headings of important group separations, which are in bold typeface, proceed from environments dominated by macrophytes (trees) to progressively reduced lifeform and more sparse vegetation types, or at least those of rather restricted environments (alpine rockfields, aquatic substrates). Thus, all c.ts. recognized as mid-grass prairie (dominated by species of Agropyron, Stipa, Poa etc.) occur together, as well as their subdivision into mid-grass types with and without a significant representation of a shrub component. Within a UNESCO structural unit the vegetation types are arranged alphabetically by Alliance and plant association, which are the finest levels of the classification and floristically defined.

Regarding the state and global ranking, note that only vegetation types which are known or presumed to be represented on BLM lands have their rankings reported. The lack of state or global rank signals that either that type does not occur on BLM lands or that we lack sufficient information to make the call. The rankings are estimates of the state and global rarity, respectively, for that type. These ranking have been determined by MTNHP staff in coordination with The Nature Conservancy and professional ecologists in Montana.

The shading of rows indicates that the state ranking is numerically 3 or less; this shading is intended as a conveniece for spotting types potentially at risk. Note that some community

types have a question mark for rank; this indicates that that these types are relatively new and have no ranking to date and/or that their extent/ubiquity is simply unknown. Table 1 (page vi) presents a matrix used by Natural Heritage Programs and which roughly details how rankings are determined with respect to occurrence and areal extent. A ranking of 3 indicates communities currently with a healthy status but with some negative impact could become imperiled. Communities with rank of 3 or less are those that should be tracked in any conservation program.

The cells of the matrix (occurrence of c.t./p.a. by R.A.) are either left blank (underline character holding position), indicating either no information or lack of occurrence, or contain one of three symbols. Sindicates that a sample (plot) or inventory sighting has been taken within the particular R.A. for the indicated vegetation type; it does not imply that the sample had been taken on BLM lands. The symbol P stands for probable occurrence within R.A. based on presence of that c.t. in an adjacent R.A. and the fact that this adjacent R.A. has substrates/environments inferred to be like those of the R.A. supporting the c.t. The H stands for hypothetical, a degree more uncertain than P; we suspect the c.t. could exist there based on putative species distribution. The P and H designations are just educated guesses of experienced ecologists.

Table 2 (page vii) is a synopsis of state rankings (numerical values 3 and less) by Resource Area and total number of community types by Resource Area. Note that only cells with S values (see below) and with both S and P values have been tabulated so a comparison can be made between actual and hypothesized occurrences.

The compilation that follows (beginning on page ix) is an alphabetical listing by scientific name (latin binomials) of all plant communities (C.T.), associations (P.A.) and habitat types (H.Ts.) listed for Montana by the Montana Natural Heritage Program. This listing has been updated and is considered allinclusive as of 12/1994.

Table 1. Matrix used as guide in estimation of state community type ranking. A combination of estimated total area occupied and estimated number of occurrences is used to define ranges for specific S-rankings (cells of table). Rankings in parenthesis are values that can be given when a community is at extremes of the cell's parameters.

Nu	timated mber of currences		0	3	mi.²	Total Area 3-15 mi. ² 2,000 to 10,000 ac.	(mi ² , acr 15-75 m 10,000 50,000	i. ² >75 mi to >50,00	
	0	SH,	SX		-	-	-		
A	1-5		_		S1	S1	S1	S1	
В	6-20				S1	S2 (S1)	S2 (S	1) S2(S1)	
С	21-100		-		S1	S2 (S1)	S3 (S:	2) S3 (S2)	
D	100+		-		S1	S2 (S1)	S3 (S2)) S5 (S3,S4	4)

Table 2. Occurrence (presence/absence) of community/association types with State Rank of 3 and less as well as total number of types, both sampled and sampled plus probable (P) tabulated by Bureau of Land Management District and Resource Area (R.A.)

State Rank Dist.	But	te Di	strict	Le	ewist	own Di	stri	ct	Miles	G City	
	GR	DL	HW	GF	Resou HV	rce Ar JD	reas. PH	 VY	BS	BD	PR
1	0	0	. 0	0	1	0	1	0	1	1	1
2	4	10	3	0	4	3	0	4	6	3	. 4
3 Total # c.ts.	16	47	19	17	14	14	19	11	29	9	25
Rank <, = 3	20	57	22	17	19	17	20	15	36	13	30
Total # c.ts. sampled				9							
in R.A.	58	135	72	93	55	64	56	40	96	37	72
% of c.ts. with rank of											
3 or less	34	42	30	18	34	26	36	37	37	35	42
Total # c.ts. S and P	77	163	104	106	71	87	65	46	131	57	74

Table 3. Listing of Montana counties by Bureau of Land Management Resource Area (counties occurring in multiple Resource Areas are in bold; counties with shading have no or very minimal BLM holding and were not specified for search when databases were queried)

GARNET RESOURCE AREA COUNTIES:

1. LINCOLN, 2. FLATHEAD, 3. SANDERS, 4. LAKE, 5. MINERAL, 6. MISSOULA,

7. POWELL, 8. RAVALLI, 9. GRANITE

DILLON RESOURCE AREA COUNTIES:

10. BEAVERHEAD, 11. MADISON

HEADWATERS RESOURCE AREA COUNTIES:

12. SILVERBOW, 13. DEER LODGE, 14. JEFFERSON, 15. CLARK, 16. PARK, 17. BROADWATER, 18. GALLATIN

24. LEWIS & CLARK

GREAT FALLS RESOURCE AREA COUNTIES:

19. GLACIER, 20. TOOLE, 21. LIBERTY, 22. PONDERA, 23. TETON, 24. LEWIS

& CLARK, 25. CASCADE, 26. MEAGHER, 27. CHOUTEAU

JUDITH RESOURCE AREA COUNTIES:

28. JUDITH BASIN, 29. FERGUS, 30. PETROLEUM, 31. GOLDEN VALLEY, 27. CHOTEAU

HAVRE RESOURCE AREA COUNTIES:

32. HILL, 33. BLAINE

PHILLIPS RESOURCE AREA COUNTIES:

34. PHILLIPS

VALLEY RESOURCE AREA COUNTIES:

35. VALLEY

BIG DRY RESOURCE AREA COUNTIES:

36. DANIELS, 37. SHERIDAN, 38. ROOSEVELT, 39. McCONE, 40. RICHLAND, 41. DAWSON, 42. WIBAUX, 43. GARFIELD, 44. FALLON, 45. PRAIRIE, 35. VALLEY,

47. ROSEBUD, 48. CUSTER

POWDER RIVER RESOURCE AREA COUNTIES:

46. TREASURE, 47. ROSEBUD, 48. CUSTER, 49. CARTER, 50. POWDER RIVER

BILLINGS RESOURCE AREA COUNTIES:

51. SWEETGRASS, 52. WHEATLAND, 53. GOLDEN VALLEY, 54. MUSSELSHELL, 55. STILLWATER, 56. YELLOWSTONE 57. CARBON, 58. BIG HORN

		Blackfeet Indian Reservation. PFISTER, R.D., B.L. KOVALCHIK, S.F. ARNO, & R.C. PRESBY. 1977. PFISTER, R.D., B.L. KOVALCHIK, S.F. ARNO, & R.C. PRESBY. 1977. PFISTER, R.D., B.L. KOVALCHIK, S.F. ARNO, & R.C. PRESBY. 1977. PFISTER, R.D., B.L. KOVALCHIK, S.F. ARNO, & R.C. PRESBY. 1977. PFISTER, R.D., B.L. KOVALCHIK, S.F. ARNO, & R.C. PRESBY. 1977. PFISTER, R.D., B.L. KOVALCHIK, S.F. ARNO, & R.C. PRESBY. 1977. ROBERTS, D.W. 1980. Forest habitat types of the Bear's Paw Mountains		Blackfeet Indian Reservation. COOPER, S.V. 1975. Forest habitat types on northwestern Wyoming and contiguous portions of Montana and Idaho. PFISTER, R.D, B.K. KOVALCHIK, S.F. ARNO & R.C. PRESBY. 1977. PFISTER, R.D, B.K. KOVALCHIK, S.F. ARNO & R.C. PRESBY. 1977. PFISTER, R.D, B.K. KOVALCHIK, S.F. ARNO & R.C. PRESBY. 1977. PFISTER, R.D, B.K. KOVALCHIK, S.F. ARNO & R.C. PRESBY. 1977. BUTLER, D.R. 1979. Snow avalanche path terrain and vegetation, Glacier National Park, Montana.
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Plant Community (CT) / Association (PA) Name Alphabetically Arranged, Includes UNESCO Designations

Page # for Community Type on Rank/RA Matrix Primary Source for CI/PA Designation

ACER GLABRUM DECID, SCRUB SERIES ACER GLABRUM DRAINAGE BOTTOM C.T.	00	SCOW, K.L. & L.D. CULWELL. 1986. Vegetation inventory of the Mill
ACER NEGUNDO ALLUVIAL DECID. FOR. SERIES ACER NEGUNDO WOODLAND SERIES ACER NEGUNDO/PRUNUS VIRGINIANA PA AGROPYRON DASYSTACHYUM/PHACELIA HASTATA C.T.	7 9 7 9 7 9	Gulch Extension Area, Little Rocky Mountains, Montana. HANSEN, P., K. BOGGS, R. PFISTER & J. JOY. 1991. DeVelice, R.L. 1992. Classification of the plant communities of
AGROPYRON SMITHII MID STEPPE SERIES AGROPYRON SMITHII PA AGROPYRON SMITHII/BOUTELOUA GRACILIS C.T.	51 51	Beaverhead, Silver Bow & Madison Counties, MT. HANSEN, P., K. BOGGS, R. PFISTER & J. JOY. 1991. Culwell, L.D. & K.L. Scow. 1982a. Terrestrial vegetation inventory: Dominy project area, Custer Co., MT., 1979-1980.
AGROPYRON SMITHII/CAREX FILIFOLIA H.T.	16	HANSEN, P.L. 1985. An ecological study of the vegetation of the Grand River/Cedar River, Sioux, and Ashland districts of the Custer National
AGROPYRON SMITHII/POA JUNCIFOLIA P.A. AGROPYRON SMITHII-STIPA VIRIDULA P.A.	20 16	Forest. LESICA, P., Personal communication to R. DeVelice DeVelice, R.L, J. Lichthardt & P. Bourgeron. 1991. A preliminary
AGROPYRON SPICATUM MID STEPPE SERIES AGROPYRON SPICATUM/AGROPYRON SMITHII H.T.	16 16	classification of the plant communities of northeastern Montana. MUEGGLER, W.F. & W.F. STEWART. 1980. Grassland and shrubland habitat
AGROPYRON SPICATUM/BOUTELOUA CURTIPENDULA H.T.	16	types of western Montana. HANSEN, P.L. 1985. An ecological study of the vegetation of the Grand River/Cedar River, Sioux, and Ashland districts of the Custer National
AGROPYRON SPICATUM/BOUTELOUA GRACILIS H.T.	16	Forest. MUEGGLER, W.F. & W.F. STEWART. 1980. Grassland and shrubland habitat
AGROPYRON SPICATUM/CAREX FILIFOLIA H.T.	16	The of mestern montana. HANSEN, P.L. 1985. An ecological study of the vegetation of the Grand River/Cedar River, Sioux, and Ashland districts of the Custer National
AGROPYRON SPICATUM/CUSHION PLANT C.T.	16	Forest. DeVelice, R.L. & P. Lesica. 1993. Plant community classification for
AGROPYRON SPICATUM/ERIOGONUM OVALIFOLIUM PA	16	bem tands, Pryor Mountains, Carbon Co., MT P. Lesica, from Hot Springs vicinity; J. Pierce, from Mt. Jumbo e. of Missoula
AGROPYRON SPICATUM/KOELERIA CRISTATA C.T.	16	Ross, R.L., E.P. Murray & J.G. Haigh. 1973. Soil and vegetation of near-pristing sites. Montana
AGROPYRON SPICATUM/MUHLENBERGIA CUSPIDATA C.T.	16	Prodgers, R. 1978. Circle West (McCone Co.) vegetation baseline study:
AGROPYRON SPICATUM/ORYZOPSIS HYMENOIDES PA	21	Vedetation on BLM lands Prvor Mountains Canhon County
AGROPYRON SPICATUM/POA CUSICKII PA AGROPYRON SPICATUM/POA SANDBERGII HT	21 16	MUEGGLER, W.F. & W.F. STEWART. 1980. Grassland and shrubland habitat
AGROPYRON SPICATUM-STIPA COMATA P.A. AGROSTIS STOLONIFERA CT ALNUS INCANA CT	55 6	types of western Montana. MTNHP (Unpublished Information) HANSEN, P., K. BOGGS, R. PFISTER & J. JOY. 1991. HANSEN, P., K. BOGGS, R. PFISTER & J. JOY. 1991.

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	HANSEN, P., K. BOGGS, R. PFISTER & J. JOY. 1991. BUTLER, D.R. 1979. Snow avalanche path terrain and vegetation. Glacier	National Park, Montana. HARVEY, S.J. 1980. The potential and current vegetation of the Gun	River Game Range. Taylor, J.E. & T.L. Holst, 1976. Grass and shrub plant community classification. Final report to Achieve Richts.	Culwell & Scow. 1982a) Taylor, J.E. & T.L. Holst. 1976. Grass and shrub plant community classification. Final report to Ashland District, Custer N.F.	laylor, J.E. & T.L. Holst. 1976. Grass and shrub plant community. classification. Final report to Ashland District, Custer N.F.	Dominy project area, Custer Co., Montana, 1979-1980. Ross, R.L., E.P. Murray & J.G. Haigh. 1973. Soil and vegetation of near-pristine sites, Montana.	HANSEN, P.L. 1985. An ecological study of the vegetation of the Grand Piver/Feder Divor Ciano and Active distributions of the Grand	Forest. Culwell, L.D. & K.L. Scow. 1982a. Terrestrial vegetation inventory. Dominy project area, Custer Co., Montana, 1979-1980.	Montana. MUEGGLER, W.F. & W.F. STEWART. 1980. Grassland and shrubland habitat	types of western Montana. MUEGGLER, W.F. & W.F. STEWART. 1980. Grassland and shrubland habitat types of western Montana.	HANSEN, P., K. BOGGS, R. PFISTER & J. JOY. 1991. Culwell, L.D. & K.L. Scow. 1982a. Terrestrial vegetation inventory:	Dominy project area, Custer Co., Montana, 1979-1980. MUEGGLER, W.F. & W.F. STEWART. 1980. Grassland and shrubland habitat types of western Montana.
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> Plant Community (CT) / Association (PA) Name Alphabetically Arranged, Includes UNESCO Designations

14 DeVelice, R.L. J. Lichthardt & P. Bourgeron. 1991. A preliminary	21 Classification 21 21 MINHP (Unpubli	Montana Montana		types of Western Montana.		estern Montana.	Pryor Mountains, Carbon County, Montana DeVelice. R.L. & P. lesica 1003 Plant community, olonomistication	13 MTNHP (Unpublished Information) 13 9 SERIES 21	12 DeVelice, R.L, J. Lichthardt & P.S. Bourgeron. 1991. A preliminary	classification of the plant communities of northeastern Montana 12 DeVelice, R.L. & P. Lesica. 1993. Plant community classification for	Pryor Mountains, Carbon County, Montana. 9 JORGENSEN, H.E. 1979. Vegetation of the Yellow Water Triangle	Montana, e, HANSEN, P.L. 1985. An ecological study of the vegetation of the Grand River/Cedar River, Sioux, and Ashland districts of the Custer National Forest.	9 MUEGGLER, W.F. & W.L. STEWART. 1980. Grassland and shrubland habitat	types of western Montana. 15 MUEGGLER, W.F. & W.L. STEWART. 1980. Grassland and shrubland habitat	
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> Plant Community (CT) / Association (PA) Name <u>Alphabetically Arranged, Includes UNESCO Designations</u>

ARTEMISIA TRIPARTITA/FESTUCA IDAHOENSIS H.T. ATRIPLEX CONFERTIFOLIA YEA. ATRIPLEX CONFERTIFOLIA XERIC SCRUB SERIES ATRIPLEX CONFERTIFOLIA XERIC SCRUB SERIES ATRIPLEX NUTTALLII P.A. ATRIPLEX NUTTALLII P.A. ATRIPLEX NUTTALLII-ARTEMISIA SPINESCENS C.T. ATRIPLEX NUTTALLII-ARTEMISIA SPINESCENS C.T. ATRIPLEX NUTTALLII/ARTOPOSIS NUTTALLIANA C.T. ATRIPLEX NUTTALLII/ORYZOPSIS HYMENOIDES P.A. BETULA GLANDULOSA DECID. SCRUB SERIES BETULA OCCIDENTALIS DECID. SCRUB SERIES BETULA OCCIDENTALIS DECID. FOR. SERIES BETULA OCCIDENTALIS DECID. FOR. SERIES BETULA DOCCIDENTALIS DECID. FOR. SERIES BETULA DOCCIDENTALIS DECID. FOR. SERIES BETULA DOCCIDENTALIS DECID. FOR. SERIES BOUTELONG RRACILIS PA CALAMAGROSTIS CANADENSIS PA CALAMAGROSTIS CANADENSIS TALL STEPPE SERIES CALAMOVILFA LONGIFOLIA/AGROPYRON SMITHII C.T. CALAMOVILFA LONGIFOLIA/AGROPYRON SMITHII C.T. CALAMOVILFA LONGIFOLIA/CAREX FILIFOLIA C.T. CALAMOVILFA LONGIFOLIA/CAREX FILIFOLIA C.T.	MUEGGLE types o MINHP (I MINHP (I Develicy Pryor M Develicy Develicy Develicy Develicy Develicy Develicy Develicy Develicy Develicy RANSEN, HANSEN, RANSEN, RANSEN, RIVER, R
CAREX AQUATILIS PA CAREX AQUATILIS SWAMP SERIES CAREX ATHROSTACHYA SWAMP SERIES CAREX BUXBAUMII P.A. CAREX BUXBAUMII SWAMP SERIES CAREX BUXBAUMII SWAMP SERIES CAREX ELYNOIDES ALPINE MEADOW SERIES CAREX ELYNOIDES C.T.	HANSEN, P., K. BOGGS, R. PFISTER & J. JOY. PIERCE, J.R. 1986. Wetland community types

Plant Community (CI) / Association (PA) Name Alphabetically Arranged, Includes UNESCO Designations	Page # for Community Type on Rank/RA Matrix	Page # for Community Type on Rank/RA Matrix Primary Source for CI/PA Designation
PADEV EI VNOTDE VEELW BOCCOT	,	
CAREA ELINOIDES/GEUM ROSSII C.I.	17	BAMBERG, S.A. 1961. Plant ecology of alpine tundra areas in Montana
CAREX FLAVA SWAMP SERIES	19	and adjacent Myoming.
LASIOCARPA PA	7,	
CAREX LASIOCARPA SWAMP SERIES	19	MANSEN, F., K. BULLS, K. PRISIER & J. JOY. 1991.
	19	HANSEN. P., K. BOGGS. R. PFISTER & 1 10V 1001
LIMOSA SWAMP	19	
CAKEX NEBRASCENSIS SWAMP SERIES	19	
NIGRICANS C.1	9 9	HANSEN, P., K. BOGGS, R. PFISTER & J. JOY. 1991.
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Plant Community (CT) / Association (PA) Name Alphabetically Arranged, Includes UNESCO Designations	Page # for Community Type on Rank/RA Matrix	Primary Source for CT/PA Designation
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PINUS ALBICAULIS/CAREX ROSSII PA PINUS ALBICAULIS/FESTUCA IDAHOENSIS P.A.	contiguous portions of Montana and Idaho. MINHP (Unpublished Information)

Plant Community (CT) / Association (PA) Name Alphabetically Arranged, Includes UNESCO Designations

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DeVelice, R.L. & P. Lesica. 1993. Plant community classification for BLM lands, Pryor Mountains, Carbon Co., MI.

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> Plant Community (CT) / Association (PA) Name Alphabetically Arranged, Includes UNESCO Designations

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> Plant Community (CT) / Association (PA) Name <u>Alphabetically Arranged, Includes UNESCO Designations</u>

BAMBERG, S.A. 1961. Plant ecology of alpine tundra areas in Montana	and adjacent Wyoming. HANSEN, P., K. BOGGS, R. PFISTER & J. JOY. 1991. Culwell, L.D. & K.L. Scow 1982a Terrestrial yearteting:	Dominy project area, Custer Co., Nortana, 1979-1980, Culwell, L.D. & K.L. Scow, 1982, Terrestrial vacatation inventory.	Dominy project area, Custer Co., Montana, 1979-1980. HANSEN, P., K. BOGGS, R. PFISTER & J. JOY. 1991. DeVelice, R.L. & P. Lesica. 1993. Plant community classification for	BLM lands, Pryor Mountains, Carbon Co., MT. MUEGGLER, W.F. & W.L. STEWART. 1980. Grassland and shrubland habitat	types of western montana. MUEGGLER, W.F. & W.L. STEWART. 1980. Grassland and shrubland habitat	types of western Montana. HANSEN, P.L. 1985. An ecological study of the vegetation of the Grand	0,	HANSEN, P., K. BOGGS, R. PFISTER & J. JOY. 1991.	Scow, K.L., L.D. Culwell & L.A. Larsen. 1987. Vegetation inventory of the Rock Creek study area, Sanders County, Montana. HANSEN, P., K. BOGGS, R. PFISTER & J. JOY. 1991.
SHORT-GRASS STEPPES SILENE ACAULIS ALPINE MEADOW SERIES SILENE ACAULIS MAT-CUSHION PLANT P.A.	SPARTINA PECTINATA H.T. SPARTINA PECTINATA TALL STEPPE SERIES 14 SPARTINA PECTINATA/CAREX SPP C.T.	SPARTINA PECTINATA/SCIRPUS PUNGENS PA	SPIRAEA DOUGLASII C.T. SPOROBOLUS CRYPTANDRUS C.T.	SPOROBOLUS CRYPTANDRUS MID-GRASS STEPPE SERIES	STEPPES AND RELATED GRASSLANDS STIPA COMATA MID STEPPE SERIES STIPA COMATA/BOUTELOUA GRACILIS H.T.	STIPA COMATA/CAREX FILIFOLIA H.T.	STIPA COMATA/CAREX HELIOPHILA H.T.	STIPA CUMAIA/KOELEKIA MACKANTHA STIPA CUMAIA/KOELEKIA MACKANTHA STIPA COMATA/PASCOPYRUM SMITHII STIPA COMATA/PASCOPYRUM SMITHII SUBALPINE OR SUBPOLAR COLD-DECIDUOUS FOREST SYMPHORICARPOS OCCIDENTALIS C.T. SYMPHORICARPOS OCCIDENTALIS DECID. SCRUB SERIES TALL-GRASS STEPPE WITHOUT WOODY PLANTS TALL-GRASS STEPPE WITHOUT WOODY PLANTS TALL-GRASS STEPPES TALL-GRASS STEPPES TALL-GRASS STEPPES TALL-GRASS STEPPES TALL-GRASS STEPPES TEMPERATE & SUBPOLAR FRESH WATER ROOTED FLOATING-LEAF TYPES TEMPERATE & SUBPOLAR FRESH WATER ROOTED FLOATING-LEAF TYPES TEMPERATE LEMNA-TYPE FREE-FLOATING FORMATION TEMPERATE LEMNA-TYPE FREE-FLOATING FORMATION	IEMPEKATE REED-SWAMP ON RIVER BANKS TERRESTRIAL HERBACEOUS COMMUNITIES THUJA PLICATA/ASARUM CAUDATUM PA THUJA PLICATA/ASARUM FILIX-FEMINA H.T.

PFISTER, R.D., B.L. KOVALCHIK, S.F. ARNO & R.C. PRESBY. 1977. HANSEN, P., K. BOGGS, R. PFISTER & J. JOY. 1991. PFISTER, R.D., B.L. KOVALCHIK, S.F. ARNO & R.C. PRESBY. 1977.	the Rock Creek study area, Sanders County, Montana. PFISTER, R.D., B.L. KOVALCHIK, S.F. ARNO & R.C. PRESBY. 1977. HANSEN, P., K. BOGGS, R. PFISTER & J. JOY. 1991.	MTNHP (Unpublished Information) PFISTER, R.D., B.L. KOVALCHIK, S.F. ARNO & R.C. PRESBY. 1977. PFISTER, R.D., B.L. KOVALCHIK, S.F. ARNO & R.C. PRESBY. 1977. PFISTER, R.D., B.L. KOVALCHIK, S.F. ARNO & R.C. PRESBY. 1977.	HANSEN, P., K. BOGGS, R. PFISTER & J. JOY. 1991.	MINHP (Unpublished Information)	<pre>rrodgers, K. 1978. Circle West (McCone Co.) vegetation baseline study: final report.</pre>
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State/Global Plant Communities/Associations Ranking for Bureau of Land Management MONTANA NATURAL HERITAGE PROGRAM

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Resource Area Codes: GR=Garnet, DL=Dillon, HW=Headwaters, GF=Great Falls, HV=Havre, JD=Judith, PH=Phillips, VY=Valley, BS=Billings, BD=Big Dry, PR=Powder River Occurrence Rating: S, documented as sampled in BCD or literature; P, high expectation of occurrence, H, hypothesized to occur; __, no sample record and unlikely to occur based on environmental parameters

MONTANA NATURAL HERITAGE PROGRAM State/Global Plant Communities/Associations Ranking for Bureau of Land Management

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State/Global Plant Communities/Associations Ranking for Bureau of Land Management MONTANA NATURAL HERITAGE PROGRAM

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^{*} Resource Area Codes: GR=Garnet, DI=Dillon, HW=Headwaters, GF=Great Falls, HV=Havre, JD=Judith, PH=Phillips, VY=Valley, BS=Billings, BD=Big Dry, PR=Powder River occurrence Rating: S, documented as sampled in BCD or literature; P, high expectation of occurrence, H, hypothesized to occur; __, no sample record and unlikely to occur based on environmental parameters

State/Global Plant Communities/Associations Ranking for Bureau of Land Management MONTANA NATURAL HERITAGE PROGRAM

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Resource Area Codes: GR=Garnet, DI=Dillon, HW=Headwaters, GF=Great Falls, HV=Havre, JD=Judith, PH=Phillips, VY=Valley, BS=Billings, BD=Big Dry, PR=Powder River Occurrence Rating: S, documented as sampled in BCD or literature; P, high expectation of occurrence, H, hypothesized to occur; __, no sample record and unlikely to occur based on environmental parameters

MONTANA NATURAL HERITAGE PROGRAM State/Global Plant Communities/Associations Ranking for Bureau of Land Management

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^{*} Resource Area Codes: GR=Garnet, DI=Dillon, HW=Headwaters, GF=Great Falls, HV=Havre, JD=Judith, PH=Phillips, VY=Valley, BS=Billings, BD=Big Dry, PR=Powder River : Phillips, VY=Valley, BS=Billings, BD=Big Dry, PR=Powder River : Accurrence Rating: S, documented as sampled in BCD or literature; P, high expectation of occurrence, H, hypothesized to occur; __, no sample record and unlikely to occur based on environmental parameters

MONTANA NATURAL HERITAGE PROGRAM

State/Global Plant Communities/Associations Ranking for Bureau of Land Management BLM District Ranking Plant Community or Association Name

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Ranking S G	17 m 4 17 4 m 4 44 4 44 4 44 10 4 10 10 10 10 10 10 10 10 10 10 10 10 10	В В В В В В В В В В В В В В В В В В В В В В В В В В В В В В В В В В В В В В В В В В В В В В В В В В В В В В В В В В В В В В В В
Plant Community or Association Name (arranged by UNESCO lifeform of decreasing stature, then alphabetically within lifeform)		LARIX LYALLII CT Montane or boreal cold-deciduous, alluvial forests mostly lacking evergreen trees ACER NEGUNDO ALLUVIAL DECIDUOUS FOREST SERIES A. NEGUNDO/PRUNUS VIRGINIANA PA FRAXINUS PENNSYLVANICA ALLUVIAL DECID. FOR. SERI F. PENNSYLVANICA-ULMUS ALMERICANA/P. VIRGINIANA POPULUS ANGUSTIFOLIA ALLUVIAL DECID. FOR. SERIES P. ANGUSTIFOLIA/CORNUS STOLONIFERA CT P. ANGUSTIFOLIA/PERBACEOUS CT P. ANGUSTIFOLIA/POA PRATENSIS CT P. ANGUSTIFOLIA/POA PRATENSIS CT P. ANGUSTIFOLIA/POA PRATENSIS CT P. DELTOIDES/CORNUS STOLONIFERA CT P. DELTOIDES/HERBACEOUS CT P. DELTOIDES/HERBACEOUS CT P. DELTOIDES/HERBACEOUS CT P. DELTOIDES/FOA PRATENSIS CT
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Resource Area Codes: GR=Garnet, DI=Dillon, HW=Headwaters, GF=Great Falls, HV=Havre, JD=Judith, PH=Phillips, VY=Valley, BS=Billings, BD=Big Dry, PR=Powder River Occurrence Rating: S, documented as sampled in BCD or literature; P, high expectation of occurrence, H, hypothesized to occur; __, no sample record and unlikely to occur based on environmental parameters

State/Global Plant Communities/Associations Ranking for Bureau of Land Management MONTANA NATURAL HERITAGE PROGRAM

	Minimum # plots 75 75 21 21	272
BLM District Lewistown Miles City Resource Area GF HV JD PH VY BS BD PR	1111	
Butte *GR DL HW	်က လ လ က် လ လ လ လ လ	1 1
Plant Community or Association Name Ranking (arranged by UNESCO lifeform of decreasing S G stature, then alphabetically within lifeform)	CLB3DGA/// POPULUS TREMULOIDES ALLUVIAL DECIDUOUS FOR. SERIES Z CLB3DEMCA0 P. TREMULOIDES ALLUVIAL DECIDUOUS FOR. SERIES Z CLB3DFAA/// POPULUS TRICHOCARPA ALLUVIAL DECIDUOUS FOR. SERIES Z CLB3DFABAO P. TRICHOCARPA-BETULA PAPYRIFERA CT CLB3DFACAO P. TRICHOCARPA/CORNUS STOLONIFERA CT CLB3DFACCO P. TRICHOCARPA/HERBACEOUS CT (same as following type) ? ?	CIBSDFADDO P. TRICHOCARPA/FOA FRATENSIS CT (old name) 4 5 CIBSDFADDO P. TRICHOCARPA/RECENT ALLUVIAL BAR CT
UNESCO Code	CLB3DGA/// POP CLB3DEMCAO P. CLB3DFAA// POP CLB3DFABAO P. CLB3DFACAO P. CLB3DFACAO P.	C1B3DFADDO F.

Resource Area Codes: GR=Garnet, DI=Dillon, HW=Headwaters, GF=Great Falls, HV=Havre, JD=Judith, PH=Phillips, VY=Valley, BS=Billings, BD=Big Dry, PR=Powder River Occurrence Rating: S, documented as sampled in BCD or literature; P, high expectation of occurrence, H, hypothesized to occur; __, no sample record and unlikely to occur based on environmental parameters

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Plant Community or Association Name (arranged by UNESCO lifeform of decreasing stature, then alphabetically within lifeform)	Shrublands or thickets of mainly evergreen needle-leaved dominants / ABIES LASIOCARPA EVERGREEN SCRUB SERIES		ARTEMISIA CANA EVERGREEN SCRUB SERIES A. CANA/AGROPYRON SMITHII PA	/ ALTERIAR INTLEMINATA BVERGREEN SCRUB SEKIES 0 A. TRIDENTATA/AGROPYRON SMITHII PA 0 A. TRIDENTATA/A DASYGTACHVITM DA	A. TRIDENTATA/STIPA COMATA PA	/ JONIFEKUS OSIEOSFERMA EVERGREEN SCRUB SERIES O J. OSTBOSPERMA/AGROPYRON SPICATUM PA O J. OSTEOSPERMA/ARTEMISIA TRIDENTATA CT	J. OSTEOSPERMA-CERCOCARPUS LEDIFOLIO Mainly cold-deciduous shrublands or		ACER GLABRUM AVALANCE ACER GLABRUM DRAINAGE	ALNUS SPP. DECIDIOUS SCRUB SE	ALNUS INCANA DECIDUOUS SCRUAINUS INCANA CT	ALNUS INCANA/CALAMAGROSTIS CANADENSIS ALNUS SINUATA CT AMELANCHIED ALMIEGIAN DECIMANIS SCRIE	_
UNESCO Code	C3A2ABA///	C3A2ABACAO	C3A2BBABAO C3A2BBABAO	C3A2BCABAO C3A2BCABAO C3A2BCABMO	C3A2BCACAO C3A2BCADAO	C3A2BDABAO C3A2BDABAO C3A2BDABCO	C3A2BDABF0	C3B4ABA///	C3B4ABABAO C3B4ABADAO	C3B4ACABA	C3B4ADABA0	C3B4ADABAO C3B4ADMBAO C3B4AFAO///	C3B4AEABA0

^{*} Resource Area Codes: GR=Garnet, DL=Dillon, HW=Headwaters, GF=Great Falls, HV=Havre, JD=Judith, PH=Phillips, VY=Valley, BS=Billings, BD=Big Dry, PR=Powder River
Occurrence Rating: S, documented as sampled in BCD or literature; P, high expectation of occurrence, H, hypothesized to occur; ___, no sample record, unlikely to occur based on environmental parameters

MONTANA NATURAL HERITAGE PROGRAM

5+3+4 220 23 29 33 0.7 10 ر. 0 Miles City lto State/Global Plant Communities/Associations Ranking for Bureau of Land Management BD PH VY Area BLM District Resource Lewistown HM Butte GR DL Ranking 2000 Ö 4 410 010 cold-deciduous shrublands or thickets of then alphabetically within lifeform) CERCOCARPUS LEDIFOLIUS DECIDUOUS SCRUB SERIES decreasing CRATAEGUS SUCCULENTA DECIDUOUS SCRUB SERIES POTENTILLA FRUTICOSA DECIDUOUS SCRUB SERIES BETULA OCCIDENTALIS DECIDUOUS SCRUB SERIES SERIES Plant Community or Association Name CORNUS STOLONIFERA DECIDUOUS SCRUB SERIES SERIES PURSHIA TRIDENTATA DECIDUOUS SCRUB SERIES temperate regions (cont.)
BETULA GLANDULOSA DECIDUOUS SCRUB SERIES RHAMNUS ALNIFOLIA DECIDUOUS SCRUB SERIES VIRGINIANA DECIDUOUS SCRUB SERIES SUCCULENTA CT (includes C; douglasii) SCRUB SERIES COMMUTATA/AGROPYRON DASYSTACHYUM CT FRUTICOSA/DESCHAMPSIA CESPITOSA PA RHUS TRILOBATA DECIDUOUS SCRUB SERIES OCCIDENTALIS/POTENTILLA FRUTICOSA SPICATUM PA SCRUB LEDIFOLIUS/FESTUCA IDAHOENSIS PA SCRUB LEDIFOLIUS/AGROPYRON SPICATUM PA WOODSII DECIDUOUS SCRUB SERIES COMMUTATA DECIDUOUS SCRUB COMMUTATA/AGROPYRON SMITHII PA by UNESCO lifeform of POTENTILLA FRUTICOSA/CAREX SPP CRATAEGUS DOUGLASII DECIDUOUS SHEPHERDIA ARGENTEA DECIDUOUS B. GLANDULOSA/CAREX ROSTRATA PRUNUS AMERICANA DECIDUOUS RHUS TRILOBATA/AGROPYRON ELEAGNUS ANGUSTIFOLIA CT B. OCCIDENTALIS CT PRUNUS VIRGINIANA STOLONIFERACT COMMUTATA PA DOUGLASII (arranged stature, WOODSII ELEAGNUS PRUNUS ROSA C3B4AGABA0 C3B4AGAAM0 C3B4AMACA0 C3B4ANACA0 C3B4AQABA0 C3B4ARMBA0 C3B4AFABA0 C3B4AHABA0 C3B4AHABM0 C3B4AJABA0 C3B4AKABA0 2222225 C3B4ANABA0 C3B4ATABA0 C3B4ALABA0 C3B4AMABA0 ********* C3B4AJA// C3B4ATM// C3B4AGA// C3B4ALA// C3B4AMA// C3B4AHA// C3B4AKA// C3B4ANA// C3B4APA// C3B4AQM// C3B4ARM// C3B4AQA/ C3B4ARA/ UNESCO Code

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Minimum # plots 18+02	77 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	117 32 68 02 09	57 05 05	57 20 11
BLM District Lewistown Resource Area GF HV JD PH VY BS BD PR \$\begin{array}{cccccccccccccccccccccccccccccccccccc		α		
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Ranking S G of of 4 4 4 SERIES 4 4 4 blands	4. W W.D	4 4 TO W 4 W	E E 4 4	4 4 4
Plant Community or Association Name anged by UNESCO lifeform of decreasing ture, then alphabetically within lifeform tate regions (cont.) FRDIA ARGENTEA CT. ORICARPOS ALBUS DECIDUOUS SCRUB SERIES ORICARROS OCCIDENTALIS DECIDUOUS SCRUB SERIES ORICARROS OCCIDENTALIS CT. NIUM OCCIDENTALE DECIDUOUS SCRUB SERIES rate region, mainly cold-deciduous shruschets of alluvial positions	SALIX BEBBIANA ALLUVIAL SCRUB SERIES SALIX BEBBIANA CT SALIX CANDIDA/CAREX ROSTRATA PA SALIX DRUMMONDIANA ALLUVIAL SCRUB SERIES SALIX EXIGUA ALLUVIAL SCRUB SERIES	SALIA EALGUA CI SALIX FARRIAE ALLUVIAL SCRUB SERIES SALIX GEYERIANA ALLUVIAL SCRUB SERIES S. GEYERIANA/CALAMAGROSTIS CANADENSIS PA S. GEYERIANA/CAREX ROSTRATA PA S. GEYERIANA/DESCHAMPSIA CESPITOSA PA S. GEYERIANA/POA PRATENSIS CT (now just SALGEY c.t. SALIX LASIANDRA CT SALIX PLANIFOLIA ALLIVIAL SCPIR SEPIES	PLANIFOLIA/CAREX AQUATILIS PA IX LUTEA ALLUVIAL SCRUB SERIE LUTEA/CALAMAGROSTIS CANADENSI LUTEA/CAREX ROSTRATA PA LUTEA/POA PRATENSIS CT (now jus IX WOLFII ALLUVIAL SCRUB SERI	IX WOLFII/ WOLFII/DES RAEA DOUGI
3A0 /// 3A0	C3B4CBABAO SP C3B4CBABAO SP C3B4CCA// SP C3B4CCABAO SP C3B4CCABAO SP C3B4CDA// SP			C3B4CGAFAO SAL C3B4CGAPAO S. C3B4CHABAO SPI

Resource Area Codes: GR=Garnet, DL=Dillon, HW=Headwaters, GF=Great Falls, HV=Havre, JD=Judith, PH=Phillips, VY=Valley, BS=Billings, BD=Big Dry, PR=Powder River

Occurrence Rating: S, documented as sampled in BCD or literature; P, high expectation of occurrence, H, hypothesized to occur; , no sample record and unlikely to occur based on environmental parameters

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ati f d wit	Extremely xeromorphic (subdesert) shrublands semi-deciduous shrubs	NUM BR CONFER	Extremely xeromorphic (subdesert) shrublands deciduous shrubs and lacking succulents ATRIPLEX CONFERTIFOLIA XERIC SCRIP SERIES	TIFOLIA PA IS VERMICULATUS XERIC SCRIB	YSTACH	NTATA PA LII PA	S. VERMICULATUS/ELYMUS CINEREUS PA Mainly evergreen, dwarf-scrub and related	dwarf-shrubland communities CASSIOPE SPP. EVERGREEN DWARF SCRIB SEPTES	CT CT DWARF SCRITE	ORUM PA	SCF	F. EMPETRIFORMIS/ANTENNARIA LANATA CT Mixed partially evergreen dwarf-scrub and h formations	HORIZONTALIS EVERGREEN		HORIZONTALIS/ANDROPOGON S	HORIZONTALIS/CALAMOVILFA LONGI	CONTERCO HORIZONTALIS/CAREX HELIOPHILA PA	S LANATA/STIP	
UNESCO Code (a	Ext sen C3C1BCA// CHE		Ext dec C3C2ABA/// ATF		° 0	01 01	C3C2ACAEAO S.	dwa C4A2BAA/// CAS				C4AZBDADAO F. Mix for	C4A3BBA/// JUN			C4A3BBAEAO JUN			

^{*} Resource Area Codes: GR=Garnet, DL=Dillon, HW=Headwaters, GF=Great Falls, HV=Havre, JD=Judith, PH=Phillips, VY=Valley, BS=Billings, BD=Big Dry, PR=Powder River

* Occurrence Rating: S, documented as sampled in BCD or literature; P, high expectation of occurrence, H, hypothesized to occur; ___, no sample record and unlikely to occur based on environmental parameters

MON.rand National Taka 10Gham State/Global Plant Communities/Associations Ranking for Bureau of Land Management

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UNESCO Code	Plant Community or Association Name (arranged by UNESCO lifeform of decreasing stature, then alphabetically within lifeform)	Ranking S G	æ æ	Butte	H	M I	H _ " E	. ದ \$	les C	
	green		5	1		> 二	ひ は		BS BD PR	Minimum # plots
C4B4BAA/// C4B4BAAAC0	SALIX ARCTICA DECIDUOUS DWARF SCRUB SERIES S. ARCTICA/POLYGONUM BISTORTOIDES CT	ί. (ι	ه ا د	ľ	اد	1	l I	I	f	
C4B4BBB///	MI-DWARF SHRUB S	n n	•	Ū		.1	 	-	بر ا ا	0.5
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C4B4BEEAB0	STATES AND TOTAL DECIDENCES DANKE SCRUB SERIES S. RETICULATA(nivalis)/CALTHA LEPTOSEPALA	2	Į,	io.	ld ld	1	1	1	[C
)		eren.	-	1	1	7
/// ZBZC777										
C4C1BBAAB0	PEDATIFIDA AERIC DWAR PEDATIFIDA-ATRIDIRX N	N	•	1	1	1	1	ŀ	ر ا ا	
C4C1BBA///	SCRUB SER	1	1	1	I	1	1	1	ر ا ا	60
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C4C1BBABD0	ATRIPLEX NUTTALLII-ARTEMISIA SPINESCENS CT	1)	1	1	1	1	ı	 U	. 4
C4C1BBABF0	ATRIPLEX NUTTALLII/MONOLEPSIS NUTTALLIANA CT	ري ري	335	1	1	1	1	1) 	# r
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C4C2ACA///	SPINESCENS XERIC DWARF SCRIB SERIES	Lemes								
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	herbaceous, tall-grass steppes with	shrubs	'		1	I	1	I	1	
CSC1BBA///	YUCCA GLAUCA TALL STEPPE SERIES									
C5C1BBABA0	YUCCA GLAUCA/CALAMOVILFA LONGIF	4	1	1	1	1	[V.	1	 U	٥.
CSB1BCA///	RHUS AROMATICA TALL STEPPE SERI		1	1		1	1	I		
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	Terrestrial, herbaceous, tall-grass steppes mostly lacking wood, plants		'	!	1	1	1	l		
C5B1CBA///	ANDROPOGON GERARDII TALL-GRASS STEPPE SERIES									
C5B1CBABA0	SCOPARI	2 3	1	1	'	***************************************	1	1	I I	0.5
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Minimum # plots

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	ion Name decreasing thin lifef	steppes	LONGIFOLIA	SERIE		STEPPE	STEPPE		I.	E C						H KH K			Steppe R SERTE			S			
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	Association form of decr cally withir	tall-grass ts (cont.)	ALAMOVILFA DAHOENSIS	H		TALL-GRASS PA	TALL-GRASS	HII I,TT	A PA	STEPP		Ο.	S					J.	ດ	\Box	SIS	PPE	K	1 ⁴	
	r Asso feform ticall	, tal ants	ALAMOVILE DAHOENSIS	S)		TAL PA	LL	LONGIFOLIA/AGROPYRON SMITHII LONGIFOLIA/ANDROPOGON HALLIT	LONGIFOLIA/CAREX FILIFOLIA	∢;	5.5	SMITHII	-GR		A.	Ĉ.	F	ENS	RAS	SPICATUM	ARBUSCULA/FESTUCA IDAHOENSIS	STEPPE	∢ c	4	
	or ife eti	10 H	AHO	HE	IJ			S N C	LIF	PHI	3	SMI	ALL		j ⊅	5 1	CT	9 2	(S)	SP	DAH	SS	LA P] 2 2 4	4
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	uni ESC alp	bac	DII	HEL	COM	NAD NAD	IFO	ROP	REX	TAL	140	PYR UCA	ACE	<u>-</u>	ALI	Ç	EX	おけい	O TEA	OPY	TUC		L L L L	MAT	1
	Plant Community (arranged by UNESCO] stature, then alphab	her ver	OROPOGON GERARDII/CI GERARDII/FESTUCA II	ROFOGON RALLII IALL-GRA HALLII/CAREX HELIOPHILA	HALLII/STIPA COMAT	55	ONG	LONGIFOLIA/AGROPYRON LONGIFOLIA/ANDROPOGON	/CA	LONGIFOLIA/C. HELIOPHILA MUS CINEREUS TALL-GRASS	PA	CINEREUS/AGROPYRON CINEREUS/FESTUCA 11	DIN	ARUNDINACEA CT	STR	PECTINATA PA	PECTINATA/CAREX SPP	reclinala/scirros P	USC	ARBUSCULA/AGROPYRON	FES:	A	CANA/CAREX HELIOPHI CANA/FESTITCA TANHOR	CANA/STIPA COMATA)
	rt C Lby th	11, ikin	T GE	CAR	STI	SIL	Y H	LIA	LIA	ERE ERE	S	S S F	RUN	ACE	AA	T A L	TA/	/ H -	1. Arb	LA/	LA/	CA	XEX OTI	TPA	
	Plant arranged k stature, t	ria	RDI	Z H	LIL	ROS	TLF	H H H H H O H H	IFO	O E	CINEREUS	REC	S	DIN	TES	INA	INA	Y T	8 1	SCO	SCU	T.A.	/CA FE	ST/	1
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	(ar st	Terrestrial, herbaceou mostly lacking woody p	ANDROPOGON GERARDII/CE A. GERARDII/FESTUCA II	A. H	A. H	CALAMAGROSTIS CALAMAGROSTIS	CALAMOVILFA LONGIFOLIA	H H		C: LONGIFOLIA/C: HELIOPHIL ELYMUS CINEREUS TALL-GRASS	П		A	P. A	PHRAGMITES AUSTRALIS F	S. P	ω. σ	- 5	refrescriet, nerbaceous, mid- ARTEMISIA ARBUSCULA MID-GRASS		A. E. t.	-) C		
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	UNESCO Code		C5B1CDACAO C5B1CBADAO	CSB1CCABA0	CSB1CCACAO	CSB1CDABA CSB1CDABA	CSB1CEA//	CSB1CEABA0 CSB1CEABM0	CSBICEACAO	CSB1CFA//	CSBICFABAO	CSBICFACAO CSBICFADAO	CSB1CGA///	SBICGABAO	SB1CGMBA0	5B1CHABMO	C5B1CHABAO	J TC	SB2BBA//	CSBZBBABAO	SBZBBACA0	COBZBCA//	CSB2BCABMO	5B2BCACA0	
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UNESCO Code	Plant Community or Association Name (arranged by UNESCO lifeform of decreasing stature, then alphabetically within lifeform)	Ranking S G	But	LM District wistown esource Area	Miles City
	Terrestrial, herbaceous, mid-grass steppe with		GR DL HW	GF HV JD PH VY BS	BD PR.
C5B2BDA///	ARTEMISIA LONGILOBA MID-GRASS STEPPE SERIES				
CSB2BDABA0	ARTEMISIA LONGILOBA/FESTUCA IDAHOENSIS PA		(a)		
CSB2BEA///	AKIEMISIA NOVA MID-GRASS STEPPE SERIES A NOVA/ACBODYDON COTCAMMA DA	27			
CSB2BEACAO	NOVA/AGROFIRON SFICE NOVA/FESTITCA TDAHOFIN		N (ا ا ا ا
C5B2BFA///	TEMISIA PEDATIFIDA MID-GR	4			1 1
C5B2BFABA0	IS PA		100	The same of the sa	
CSB2BFABMO	SPICATUM	2 4	1 (<u>Q</u>		1
CSB2BGA///	TEMISIA TRIDENTATA MI	ś	1		1
CSBZBGABAO	TRIDENTATA/FESTUCA IDAHOENSIS	4 5	P S S	E E E	lin lin
CSBZBGACAO	CABRELLA	4 4	Д	E E	1
CSBZBHA///	TRIPARTITA MI)	
CSBZBHABAO	E	3	IN IN		
CSB2BHABD0	SCABRELLA	2 2	H		
CSB2BJA///	TIERREZIA SAROTHRAE M		1		1
CSBZBJABAO	SAROTHRAE/AGROPYRON D	5	1		!
CSBZBJACAO	G. SAROTHRAE/A. SPICATUM CT (Wodeconnected)	-n-			1
CSB2BKA///	H		1		-
C5B2BKABA0		3 4	lo		1
CSBZBKACAO	P. FRUTICOSA/F. SCABRELLA PA	4	i d	יי ה מינע וויינע	1
CSB2BLA///	URSHIA TRIDENTATA MID-G		ı		1
CSBZBLABAO	. TRIDENTATA/AGROPYRON SPICATUM	3 4		 	
C3B4AQMBA0	TRIDENTATA/FESTUCA I	3	Cr CS		1
CSBZBLACAO	K.		н		
CSB2BMA///	S		t .		
C3B4ARMBA0	US AROMATICA/AGROPYRON	S 4	1		1
C5B2BMABA0	AROMATICA/ANDROPOGON		1		
C5B2BMACA0			1		ት ር
CSB2BMADAO	F.) M	1		
C5B2BNA///	RCOBATUS VERMICULATUS MID-GRASS		ا ادی	1	4
C5B2BNABA0	RON SMIT		H P S	S 단 S I 전 S	D1
CSBZBPA///	ASS STEPPE				ł
	I. GLAUCA/AGROPYRON SPICATUM CT (NARHP uppul)	4	! !	1 1	

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then alphabetically	2		Resource Area	MILES	CITY	
	ing shrubs	'GR DL HW	GF HV JD PH VY	BS BD	PR	
HACELÍA HASTATÁ PA ASS STEPPE SERTES	2				%1 85	
AGROPYRON SMITHII PA	4	100	la la			
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A. SMITHII/CAREX FILIFOLIA	4 4	1	1 2 23 104 3 23 3 23	4 P.	ນແ	
440 A. SMITHII/STIPA VIRIDULA PA	4 4		S S			
CSB2CCACA) / AGROPIRON SFICATUM MID-GRASS STEPPE SERIES	.)				·	
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A. SPICATUM-B. GRACILIS PA) 4 H N	lo:	O		מ	
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AGROSTIS STOLONIFERA	S	i va i va			วบ	
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A. SCOPARIUS-CAREX FI	3	-				
A. SCOPARIUS-CAREX HELIOPH	m) (ט נ	
A. SCOPARIUS-MUHLENBERGIA CUSPIDATA PA	2 2		N	יטן		
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FESTUCA IDAHOENSIS MID-G	•	מ מיני מיני	ן ן ן	I I	1	
5B2CGABAO F. IDAHOENSIS/AGROPYRON C	4 4	S	1	ľ	1	
SB2CGACAO F. IDAHOENSIS/A.	4		N IA) v:	1	
SB2CGADAO F. IDAHOENSIS/A. SPICATUM PA	5	SSS	•) 	I	
SEZUGAEAO F. IDAHOENSIS/CAREX HELIOPHILA PA	co co		!	<u>ρ</u> .	[C)	
SBACGAGAU F. IDAHOENSIS/STIPA RICHARDSONII PA	3 4	 		Ω ₁)	
KELLA MID-GRASS		l N	l l	1	1	
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	Terrestrial, herbaceous mid-grass steppe lacking woody plants (cont.)			GK DL	M H	H	HV JD	PH	M Y	SS BD	ይጸ	
C5B2CHACAO C5B2CHACAO C5B2CJA///	FESTUCA SCABRELLA/AGROPYRON SPICATUM PA F. SCABRELLA/FESTUCA IDAHOENSIS PA GLYCERIA BOREALIS MID-GRASS STEPPE SERIES	4 73	4. 7.0	മ വ വ	က က	ល មល	۲. S	нн	, '	1 1	1 1	
C5B2CJABA0 C5B2CKA///	* W	m 	33	1 1	1 1	N)			1 1			
C5B2CKABA0 C5B2CLA///	P. VIRGATUM PA (1917-NHP UNDUB, INFO.) POA PALUSTRIS MID-GRASS STEPPE SER	C.	Ü		1 1	1 1	1 1	1 1	: 1	1 1	1 1	
C5B2CLABA0 C5B2CLM///	P. PALUSTRIS CT POA PRATENSIS MID-GRASS STEPPE SERIES	4	4	וו		lw '	1 1	1 1	1 1	1 1	(O)	
C5B2CLMBA0 C5B2CNA///	P. PRATENSIS CT SPOROBOLUS CRYPTANDRUS MTD-GRAS	2	2	S	[O	lo3	l l	lw '	1 1	W	lω	
CSB2CNABA0 CSB2CMA///	SPOROBOLUS CRYPTANDRUS PA STIPA COMATA MID-GRASS STEPPE SEPTES	7	m	14	Ô	TÇR	Te f		137 1 1 1	N	1 1	
	S. COMATA-AGROPYRON SMITHII	η.	L-·	1	8	מ	lo	1	1	 rr	1	
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CSB2CMADAO		4	J 44		1-1					L L L	ഗ ഗ	
CSB2CMBBB0	STIPA VIRID	S;	je.	1	1	!	1	ധ ഗ	ທ ທ	!	1	
	Terrestrial, herbaceous short-grass steppe with woody plants (no examples thereof)			1	I	1			,	1	!	
	Terrestrial, herbaceous short-grass steppe lacking woody plants											
C5B3CBA///	HORT-GRASS S			- 1	ı	:						
// はつつのほうつ	CAREA GEIEKI SHOKI-GRASS STEPPE SERIES Meadows, pastures or related grasslands about				! 1			1 1				
/// 점점점 < ひよひ	treeline, closed alpine mat											
CSC2ABABAO	CAREX SPP./	4	4	S	[S]	lσι	[04	1	i	1	1	
CSCZACABDO	C. ELYNOIDES CT	4	_	(C	IC	1	Į¢	1		1		
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CSCZCIAFAU	CAREX NIGRICANS CT	4	4	l Io	Д	H			. 1			

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Miles City	BS BD PR		H H		1. 1			
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BLM District Lewistown Resource Are	GF HV JD							IS H H
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Ranking S G	W <	1. W 4. 4.		(M: M: M	ζ. ιο ι		77	0.4 K
Plant Community or Association Name (arranged by UNESCO lifeform of decreasing stature, then alphabetically within lifeform)	Meadows, pastures or related grasslands above treeline, closed alpine mat (cont.) CAREX RUPRESTRIS/POTENTILLA OVINA CT CAREX SCIRPOIDEA/GEUM ROSSIT CT	CAREX SCIRPOIDEA/POTEN DESCHAMPSIA CESPITOSA/ DESCHAMPSIA CESPITOSA/ FESTUCA IDAHOENSIS ALP	F. IDAHOENSIS CAREX FILIFOLIA PA F. IDHAOENSIS/POTENTILLA DIVERSIF F. IDAHOENSIS CAREX SCIRPOIDEA PA F. IDAHOENSIS DESCHAMPSIA CESPITO	GEUM ROSSII/ARENARIA OBTUSILOBA CT JUNCUS DRUMMONDII/ANTENNARIA LANATA CT JUNCUS PARRYI/ERIGERON URSINUS CT LEUCOPOA KINGII ALPINE MEADOW SERIES	Ameadows, pastures or related grasslands above treeline, closed alpine mat (cont.) BACO LEUCOPOA KINGII PA (NTWHP whymb.info) BAGO L. KINGII/OXYTROPIS CAMPESTRIS CT	POLYGONUM BISTORTOIDES ALPINE MEADOW SILENE ACAULIS ALPINE MEADOW SERIES SILENE ACAULIS MAT-CUSHION PLANT PAXER PROPHYLLIM TENEX ALPINE MENCAS SEPT	Alpine (or subnivian) mat-patches Alpine (or subnivian) mat-patches DRYAS INTEGRIFOLIA ALPINE MEADOW SERI DRYAS INTEGRIFOLIA/CAREX SPP. PA DRYAS OCTOPETALA ALPINE MEADOW SEPIFE	D. OCTOPETALA/CAREX SPP. PA D. OCTOPETALA/CAREX RUPESTRIS CT D. OCTOPETALA/POLYGONUM VIVIPARUM CT
UNESCO Code	C5C2A1AGA0 C5C2A1AJA0	C5C2A1AJC0 C5C2A1ABA0 C5C2A1ACA0 C5C2ADA///	CSC2ADABAO CSC2ALAFAO CSC2ADACAO CSC2ADACAO	CSC2ADAEAO CSC2B2ABCO CSC2C1AACO CSC2C1AAFO	C5C2B1BACO	CSC2AGA/// CSC2AGA/// CSC2AGABAO	C5C2BBABAO C5C2BBABAO C5C2BCA///	C5C2BCABAO C5C2B3ABLO C5C2A3ABSO

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MONTANA NATURAL HERITAGE PROGRAM State/Global Plant Communities/Associations Ranking for Bureau of Land Management

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	Plant Community or Association Name arranged by UNESCO lifeform of decreasing stature, then alphabetically within lifeform	swamp with low	Si	ES	LEPTOSEPALA CT SWAMP SERIES	salt swamps		SPICATA SALT MEADOW SERIES	JUNCIFOLIA PA (Lesica pers.comm.)	SEKLES	vegetation and similar	ນ ນ				SERIES	
	r A feft tic		SERIES	SERIES	EPTOSE			ME2	UNC:	MEADOW	eget	٦.			SERIES		
	y or life	Low-sedge (and graminoid) or short-term flooding	ഗ		d	_ ^		ALT	- 4	N N	, d) E	PA	E E		FORB	CI
	Plant Community (arranged by UNESCO : stature, then alpha)	Low-sedge (and gramino or short-term flooding	CAREX SAXATILIS SWAMP CAREX SAXATILIS PA	SCOPULORUM SWAMP SCOPULORUM PA	C. SCOPULORUM/CALTHA I ELEOCHARIS PAUCIFLORA	PAUCIFLORA and half-wo	CT	SPICATA SAI	AGROPYRON SMITHII-POA	T	Mainly perennial forb	EQUISETUM FLUVIATILE	EQUISETUM FLUVIATILE	SENECIO TRIANGULARIS	TYPHA LATIFOLIA FORB	Σ	
	UNE UNE	f gr	SAXATILIS SWA SAXATILIS PA	CAREX SCOPULORUM SW. CAREX SCOPULORUM PA	CAL	CIF ha	SALICORNIA RUBRA CT Inland salt meadows	CAT	HIL	HORDEUM JUBATUM CT	al	IAT	IAT	SENECIO TRIANGULARIS	A	TYPHA LATIFOLIA PA POLYGONUM AMPHIBIUM	POLYGONUM AMPHIBIUM
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					1
UNESCO Code	Plant Community or Association Name (arranged by UNESCO lifeform of decreasing stature, then almbahatically within lifeform)	Ranking S G	J Butte		Miles City
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	ly vegetated areas		GR DL HW	GF HV JD PH VY	BS BD PR
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O FORT A C F D D	LOWIANG and Submontane Scarcely vegetate				
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C6A2BDABA0	P. FLEXILIS/SCREE PA		1]
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